CONSTRUCTION STANDARD SPECIFICATION

SECTION 16514

HIGH INTENSITY DISCHARGE (HID) LUMINAIRES AND LAMPS

Page

PART 1 - GENERAL

1.01 Summary 2
1.02 Quality Assurance 2

PART 2 - PRODUCTS

2.01 General 3
2.02 Ballasts 3
2.03 Luminaires 3
2.04 Lamps 4

PART 3 - EXECUTION

3.01 Ballast Installation 5

CONSTRUCTION STANDARD SPECIFICATION

SECTION 16514

HIGH INTENSITY DISCHARGE (HID) LUMINAIRES AND LAMPS

PART 1 - GENERAL

1.01 SUMMARY

This specification covers high intensity discharge (HID) luminaires for indoor use. The preferred HID luminaire for indoor use in occupied spaces shall be the metal-halide "white light" unit, with pulse-start lamp and ballast, lamp explosion protection features, and premium color-corrected lamp. Luminaire design, lamp wattage, and ballast voltage will be dependent on building layout, required illumination level, and electrical power availability. Sodium-based HID luminaires shall not be used indoors unless specifically required by the contract documents.

1.02 QUALITY ASSURANCE

The latest issue of the following specifications and standards at the time of contract award form a part of this Section:

A. National Electric Code (NEC) (NFPA 70).

B. Illuminating Engineering Society of North America (IESNA) Handbook.

C. Certified Ballast Manufacturers Standards (CBM)

D. American National Standards Institute (ANSI):

ANSI C78.380 - 1984	Electric Lamps - High Intensity Discharge Lamps - Method of Designation
ANSI C78.1300 Series	Specifications for Metal-Halide and High-Pressure Sodium Lamps
ANSI C82.4 - 1985	Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type)
ANSI C82.5 - 1983	Reference Ballasts for High-Intensity Discharge Lamps

PART 2 - PRODUCTS

2.01 GENERAL

A. All material shall be as specified unless noted "or approved equal". Any HID fixture substituted by the contractor shall not only be similar in appearance to the specified fixture, but also shall have a coefficient of utilization and isolumen distribution curves within 10 percent of the specified fixture. In addition, the manufacturer shall submit photometric data to substantiate coefficients of utilization, isolumen curves, and zonal lumen distribution.

B. All units approved shall bear a Nationally Recognized Testing Laboratory (NRTL) approval label and be NRTL listed for the application.

C. Luminaires shall be of commercial grade unless specified otherwise on contract drawings.

D. Luminaires for recessed or surface ceiling mounting shall include, in the shop drawing submittal, complete dimensions, the details of mounting and hardware to include seismic protective features, door construction and access if any, suspensions and latching, lens type and thickness if any, ballast and lamp location, and heat shield if required.

E. Luminaires for suspended mounting shall include, in the shop drawing submittal, overall dimensions, details of mounting and hardware to include seismic protective features, lens type and thickness if any, remote ballast provisions if any, and power conductor type and connections. The preferred power conductor connection method is by NEMA L5 or L7 series twist-lock plug-and-cord, with mating receptacle mounted on structure or the fixture anchor point.

2.02 MAJOR COMPONENTS

A. Ballasts shall be in a separate compartment from the lamps and shall be encapsulated for quiet operation. For a modular “shoebox” type luminaire, a ballast may be considered to be in a separate compartment if it is outside the lamp reflector assembly and shielded or well ventilated against the lamp’s heat load.

B. Ballasts shall be of the pulse-start, energy-efficient regulator type, unless otherwise shown in the contract documents.

1. The ballast shall be manufactured to the ANSI C82.4 and ANSI C82.5 standards and operate the lamp within the limits of the ANSI voltage-wattage trapezoid.

2. The ballast shall be designed to accommodate +/- 10% variation in line voltage and have a power factor of 0.9 or better.

3. Ballasts shall be multi-tapped for either 120v, 208v, 277v, or 480v line power unless otherwise shown in the contract documents.

2.03 LUMINAIRES

A. The HID luminaire shall be a complete, coordinated assembly of ballast, ignitor if any, ballast housing, reflector, diffuser or lens, heat shield as required, wiring compartment, mounting device and hardware (unless remote mounted ballast is

specified). All components shall be connected by secure mechanical means to reduce vibration noise and to prevent detachment of any components due to shock or vibration.

B. Lay-in type Fixtures

1. Lay-in type fixtures shall have earthquake clips to secure them to T-bars.

2. Where a plastic lens is specified, the lens shall be 0.4" thick acrylic and shall be mounted in the door in such a manner that the lens cannot fall due to vibration or sudden opening of the door. In addition, the plastic lens shall be protected in case of violent lamp failure.

3. The door shall have a positive hinge and latch with a light-leak gasket.

C. High-bay Type Fixtures

1. High bay fixtures shall be mounted from cast wiring boxes with hangers. The fixture mounting device shall be of the compression 3/4" conduit type with set screw. Gravity type hanger hubs on fixture are not acceptable.

2. Unless specified otherwise, reflectors shall be smooth parabolic of .064" aluminum stock finished and sealed in aluminum oxide to a thickness of 7.5 mg per square inch by an Alzak process.

D. Fixtures to be mounted outside shall comply with the provisions of the New Mexico Night Sky Act.

2.04 LAMPS

A. High intensity discharge lamps shall be metallic halide or high-pressure sodium as defined by the IESNA and as specified on the construction drawings. Mercury lamps shall not be used. Lamps shall be manufactured and listed by the manufacturer to ANSI C78-1300 series standards.

1. Lamp bases shall be of the mogul screw type for lamps over 250 watts. Lamp bases and sockets shall not permit inadvertent use of pulse-start lamps with conventional ballasts and vice versa.

2. Lamp bulbs shall be of the BT, ED, and E shape, of either clear or diffuse material.

3. The lamp shall meet all of the requirements of the ANSI C78.380 and ANSI C78.1300 Series Standards.

4. The ballast and luminaire in which the lamp is used shall be approved for the application by the lamp manufacturer.

5. Metal halide lamps shall be mounted on their vertical axis for maximum efficiency, unless specified otherwise in the contract drawings.

B. LAMP STANDARDIZATION

1. Lamps for facilities illumination, both indoor and outdoor, shall normally be of standard manufacture, such as manufactured by GE, Westinghouse, Sylvania, or equal.

2. If non-standard lamps are used, a stamped or engraved metal tag with the lamp ordering number shall be permanently attached by mechanical means to the luminaire, and the Contractor shall identify the lamp by this ordering number on two shop drawings submittals.

PART 3 - EXECUTION

3.01 INSTALLATION

A. All luminaires shall be connected to the building ground system.

B. Connect ballast transformer taps, if provided, to maintain ballast voltage within manufacturer's recommended tolerance for the installation being provided.

D. Ballasts shall be securely fastened to the luminaire housing for good thermal contact and to prevent vibration.

END OF SECTION